J. E. de Villiers, Government Surveyor, Cape Town (proposed by David Gill); and
John Watson, Norman Villa, Glossop Road, Sheffield (proposed by W. J. B. Roome).

Two hundred and twenty presents were announced as having been received since the last meeting, including, amongst others:—

Cayley's Collected Mathematical Papers, vol. x., presented by the Cambridge University Press; Catalog der Astronomischen Gesellschaft, Zone +15° bis +20°, presented by the Society; the Indian Calendar, with tables of eclipses, &c., presented by Robert Sewell; Laplace, Œuvres Complètes, tome xi., presented by the Paris Academy; Lœwy and Puiseux, Atlas Photographique de la Lune, fasc. I., presented by the authors; W. T. Lynn, Remarkable Eclipses, presented by the author; Map of India, showing path of eclipse of January 1898, presented by the Surveyor-General; *Venus*-Durchgänge, 1874 und 1882, Bericht über die deutschen Beobachtungen, Band vi., presented by the German Transit of *Venus* Commission; Original negatives of *Jupiter* and the Moon, photographs of *Mars*, and Sun-spot, and portrait of W. Chauvenet, presented by the Lick Observatory; Series of thirteen transparencies of the Milky Way, &c., presented by E. E. Barnard; series of fifteen photographs of the Milky Way, &c., presented by Max Wolf; Photographs of the spectrum of the zinc arc, presented by Henry Crew.

Mean Areas and Heliographic Latitudes of Sun-spots in the Year 1894, deduced from Photographs taken at the Royal Observatory, Greenwich, at Dehra Dûn (India), and in Mauritius.

(*Communicated by the Astronomer Royal.*)

The results here given are in continuation of those printed in the *Monthly Notices*, vol. lvi. p. 11, and are deduced from the measurements of solar photographs taken at the Royal Observatory, Greenwich, at Dehra Dûn, India, and at the Royal Alfred Observatory, Mauritius.

Table I. gives the mean daily areas of umbræ, whole spots, and faculæ for each synodic rotation of the Sun in 1894; and Table II. gives the same particulars for the entire year 1894, and the five preceding years for the sake of comparison. The areas are given in two forms. First, projected areas—that is to say, as seen and measured on the photographs—these being expressed in

millionths of the Sun's apparent disc; and next, areas as corrected for foreshortening, the areas in this case being expressed in millionths of the Sun's visible hemisphere.

Table III. exhibits for each rotation in 1894 the mean daily area of whole spots, and the mean heliographic latitude of the spotted area, for spots north, and for spots south, of the equator, together with the mean heliographic latitude of the entire spotted area, and the mean distance from the equator of all spots; and Table IV. gives the same information for the year as a whole, similar results from 1889 to 1893 being added as in the case of Table II. Tables II. and IV. are thus in continuation of the similar tables for the years 1874 to 1888, on pp. 381 and 382 of vol. xlix. of the *Monthly Notices*.

The rotations in Table I. and Table III. are numbered in continuation of Carrington's series (Observations of Solar Spots made at Redhill, by R. C. Carrington, F.R.S.), No. 1 being the rotation commencing 1853 November 9. The assumed prime meridian is that which passed through the ascending node at mean noon on 1854 January 1, and the assumed period of the Sun's sidereal rotation is 25·38 days. The dates of the commencement of the rotations are given in Greenwich civil time, reckoning from mean midnight.

TABLE I.

No. of Rotation.	Date of Commencement of each Rotation.	No. of Days on which Photographs were taken.	Mean of Daily Areas. Umbræ.	Projected Whole Spots.	Faculæ.	Corrected for Foreshortening. Umbræ.	Whole Spots.	Faculæ.
	days							
538	1893 Dec. 16·75	25	529	2785	1932	390	2119	2186
539	1894 Jan. 13·09	27	383	2174	1133	268	1553	1274
540	Feb. 9·43	28	319	1794	1692	234	1329	1874
541	Mar. 8·76	27	256	1390	1212	167	933	1297
542	Apr. 5·06	27	356	1949	1705	272	1518	1919
543	May 2·31	28	456	2417	1942	355	1870	2115
544	May 29·53	27	515	2681	1745	380	2034	1988
545	June 25·73	27	420	2315	2353	299	1695	2626
546	July 22·94	27	372	2093	1453	259	1477	1628
547	Aug. 19·16	28	201	1022	1560	142	736	1774
548	Sept. 15·42	27	331	1785	1867	230	1266	2110
549	Oct. 12·70	27	155	776	1990	120	617	2371
550	Nov. 9·00	28	186	1018	1534	136	773	1698
551	Dec. 6·31	27	188	1164	1613	140	902	1834

TABLE II.

Year.	No. of Days on which Photographs were taken.	Mean of Daily Areas. Umbræ.	Projected Whole Spots.	Faculæ.	Corrected for Foreshortening. Umbræ.	Whole Spots.	Faculæ.
1889	360	17·9	103	107	13·1	78·0	131
1890	361	21·3	133	273	15·5	99·4	304
1891	363	120	745	1322	86·2	569	1412
1892	362	255	1596	3230	186	1214	3270
1893	362	327	1983	2287	234	1464	2404
1894	364	317	1728	1666	231	1282	1877

TABLE III.

No. of Rotation.	Date of Commencement of each Rotation.	No. of Days on which Photographs were taken.	Spots North of the Equator. Mean of Daily Areas.	Spots North of the Equator. Mean Heliographic Latitude.	Spots South of the Equator. Mean of Daily Areas.	Spots South of the Equator. Mean Heliographic Latitude.	Mean Heliographic Latitude of Entire Spotted Area.	Mean Distance from Equator of all Spots.
	days			°		°	°	°
538	1893 Dec. 16·75	25	585	+13·85	1534	−10·74	− 3·95	11·60
539	1894 Jan. 13·09	27	490	+ 9·96	1063	−11·71	− 4·87	11·15
540	Feb. 9·43	28	236	+12·73	1094	−26·40	−19·47	23·98
541	Mar. 8·76	27	790	+14·55	142	− 9·85	+10·83	13·83
542	Apr. 5·06	27	685	+16·44	833	−19·50	− 3·29	18·12
543	May 2·31	28	419	+14·80	1451	−14·66	− 8·06	14·69
544	May 29·53	27	955	+11·59	1080	−14·27	− 2·14	13·01
545	June 25·73	27	885	+10·94	810	−13·51	− 0·74	12·17
546	July 22·94	27	1052	+10·29	425	−14·33	+ 3·21	11·45
547	Aug. 19·16	28	465	+10·73	271	−12·94	+ 2·02	11·54
548	Sept. 15·42	27	405	+12·06	862	−12·08	− 4·36	12·07
549	Oct. 12·70	27	344	+11·74	273	−12·04	+ 1·21	11·87
550	Nov. 9·00	28	290	+11·80	483	−16·17	− 5·69	14·53
551	Dec. 6·31	27	183	+12·00	719	−16·28	−10·54	15·41

TABLE IV.

Year.	No. of Days on which Photographs were taken.	Spots North of the Equator. Mean of Daily Areas.	Spots North of the Equator. Mean Heliographic Latitude.	Spots South of the Equator. Mean of Daily Areas.	Spots South of the Equator. Mean Heliographic Latitude.	Mean Heliographic Latitude of Entire Spotted Area.	Mean Distance from Equator of all Spots.
			°		°	°	°
1889	360	5·0	+ 7·26	73·0	−11·90	−10·68	11·61
1890	361	53·1	+22·20	46·3	−21·75	+ 1·73	21·99
1891	363	401	+20·49	169	−19·91	+ 8·52	20·31
1892	362	607	+15·09	607	−21·69	− 3·29	18·39
1893	360	517	+14·91	941	−14·26	− 3·93	14·49
1894	364	543	+12·31	739	−15·56	− 3·75	14·18

The principal features of the Sun-spot record for 1894, as brought out by the above tables, are :—

(1) A definite decrease in the mean daily areas of whole spots as compared with 1893 is shown, though this area was greater in 1894 than in 1892, and considerably greater than in 1883, the year of maximum in the preceding cycle.

(2) Faculæ have diminished in a yet higher ratio ; the decline in their case having set in strongly in 1893, a year earlier than with the spots, and having continued throughout 1894.

(3) Umbræ have shown hardly any decrease as compared with 1894.

(4) The decline as to whole spots has been limited to the southern hemisphere, the northern showing a slight recovery.

(5) But the southern hemisphere still remains the predominant one.

(6) Little change has taken place in the mean distribution of the spots in heliographic latitude, but the general trend of movement is still towards the equator.

(7) There is a slight reversal of this trend for the southern hemisphere considered separately, due chiefly to the great outburst of February 16 to March 1 in latitude $-32°$; but the movement towards the equator is very marked for the northern hemisphere.

(8) It may be added that no day in 1894 showed the Sun entirely free from spots.

Photographic Stellar Spectra of the Variable Star β Lyræ, and also of Types III. and IV. By F. McClean, M.A., LL.D., F.R.S.

The exceptional phenomena revealed in the spectrum of the variable star *β Lyræ* are well known, and hypotheses have been framed to account for them by Pickering and others.

The series of comparative photographs which accompany this paper (Plates 1 and 2) show distinctly the periodic variations of this spectrum. They extend from H_β to H. The negatives were taken during the autumn of 1895.

Pickering in 1891 identified the spectrum with hydrogen and the *Orion* stars. Lockyer in 1894 attributed the absorption spectrum to two stellar components, one resembling *Rigel* and the other *Bellatrix*. He found that the bright lines and the *Bellatrix* lines were displaced in the same direction, but not to the same extent.

On comparing the spectrum of *β Lyræ* with the spectra of other Helium stars, it appears that the nearest approach to it is the spectrum of *ζ Tauri*. The spectrum of this star has